ABSTRACT OF THE DISCLOSURE

The optical thickness of a film formed on a substrate is controlled precisely to manufacture an optical filter having an accurate optical thickness. Time is counted during a film (4) is being formed on a substrate (3) so as to note time points t with respect to a reference time that is set in advance. At least one of two optical characteristics consisting of energy transmittance and energy reflectance when the film being formed on the substrate (3) is irradiated with monitoring light is expressed by a function f(t) of the time points t on the basis of the theoretical formula of the optical characteristic. The function f(t) has a theoretical constant a_k (k is an integer equal to or greater than 0). The optical characteristic is measured by irradiating the film (4) with the monitoring light at the time points t. A theoretical value of the optical characteristic is calculated from the function f(t). The theoretical constant a_k is compensated so as to minimize the difference between the measured value of the optical characteristic and the theoretical value of the optical characteristic in order to obtain a proper constant a_k' at any time during the formation of film (4). Based on the proper constant a_k', a designed thickness achieving time at which the optical thickness of the film (4) reaches a designed thickness is predicted. The film formation is stopped at the designed thickness achieving time, thereby obtaining the optical filter.

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